USING OES DATA TO MEASURE INEQUALITY
The Occupational Employment Statistics program:

- **Sample**
  - 1.2 million business establishments
  - Employing 76 million workers (unweighted)
- Establishments are asked to provide the occupation and wages of each employee by Standard Occupational Classification and wage range
- **Sample is stratified by industry and area**
Advantages of OES Data

- Employment and wage estimates:
  - For over 800 occupations
  - For the nation as a whole
  - For individual states
  - For nearly 600 metropolitan and nonmetropolitan areas
  - For over 400 industry classifications
  - Provides employment and mean, 10\textsuperscript{th}, 25\textsuperscript{th}, median, 75\textsuperscript{th}, and 90\textsuperscript{th} percentile wages
Disadvantages of using OES data for measuring inequality

- Wage and salary workers only, not self-employed
- Wages are measured in intervals, with lowest and highest intervals below $9.25 and over $100 per hour, respectively
- Not designed to be a time series
  - It takes 3 years to collect the data
  - Breaks in series
  - Sometimes time series comparisons can be made when there are no breaks in series and data are at least three years apart
Measures

- OES economists John Jones, Elizabeth Cross, and Chris Cunningham are looking at:
  - Differences by states and metropolitan areas
  - Differences by industry and occupation
  - Changes in percentile wages over time
MEASURING THE RATIO OF THE 90TH PERCENTILE LE WAGE TO THE 10TH PERCENTILE LE AND 75TH TO 25TH
Ten states and DC had 90/10 ratios above U.S. ratio
Ten states had 90/10 ratios below 4.0
States with higher mean wages have higher 90/10 ratios.
90/10 Ratios, Selected Metropolitan Areas

**Above 6:**
- San Jose
- Washington
- New York
- Huntsville, AL
- San Francisco
- Oakland

**Below 4.5:**
- Orlando
- Tampa
- Cleveland
- Pittsburgh
- Miami
- Scranton
- Myrtle Beach, NC
- Morristown, TN
- 90/10 wage ratio increases as MSA size increases
- 75/25 wage ratio is more stable
- Substantial increase in 90\textsuperscript{th} percentile wages as MSA size increases
- Small increase in 10\textsuperscript{th} percentile wages as MSA size increases
- Noticeable increase in 75th percentile wage as MSA size increases
- Small increase in 25th percentile wage as MSA size increases, but larger than the 10th percentile wage increase
### 90/10 Ratio by Industry Sector

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodation and Food Services</td>
<td>2.1</td>
</tr>
<tr>
<td>Agriculture, Forestry, Fishing and Hunting</td>
<td>2.5</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>2.9</td>
</tr>
<tr>
<td>Arts, Entertainment, and Recreation</td>
<td>3.6</td>
</tr>
<tr>
<td>Administrative and Support and Waste Management and Remediation Services</td>
<td>3.5</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>3.3</td>
</tr>
<tr>
<td>Other Services (except Public Administration)</td>
<td>3.9</td>
</tr>
<tr>
<td>Real Estate and Rental and Leasing</td>
<td>3.9</td>
</tr>
<tr>
<td>Construction</td>
<td>3.6</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>4.2</td>
</tr>
<tr>
<td>Educational Services</td>
<td>4.3</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>4.6</td>
</tr>
<tr>
<td>Federal, State, and Local Government (excluding state and local schools and hospitals)</td>
<td>4.0</td>
</tr>
<tr>
<td>Utilities</td>
<td>3.3</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>4.8</td>
</tr>
<tr>
<td>Mining, Quarrying, and Oil and Gas Extraction</td>
<td>4.2</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>5.0</td>
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<tr>
<td>Information</td>
<td>5.7</td>
</tr>
<tr>
<td>Management of Companies and Enterprises</td>
<td>5.1</td>
</tr>
<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>5.5</td>
</tr>
</tbody>
</table>
Wage Percentiles by Industry Sector, 2013
NAICS 4-digit industry hourly mean wage and 90/10 ratio
Selected industries with 90/10 ratios below 2.5, May 2013

Motor Vehicle Manufacturing
Apparel Knitting Mills
Child Day Care Services
Animal Slaughtering and Processing
Florists
Fiber, Yarn, and Thread Mills
Support Activities for Crop Production
Gasoline Stations
Restaurants and Other Eating Places
Postal Service
Industries with highest 90/10 ratios

- Offices of Physicians
- Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures
- Motion Picture and Video Industries
- Independent Artists, Writers, and Performers
- Legal Services
- Health and Personal Care Stores
- Advertising, Public Relations, and Related Services
- * Other Financial Investment Activities
- Oil and Gas Extraction
- Wholesale Electronic Markets and Agents and Brokers
- *Securities and Commodity Contracts Intermediation and Brokerage
- *Securities and Commodity Exchanges
- Radio and Television Broadcasting
- Drugs and Druggists' Sundries Merchant Wholesalers
Differences within and between occupations
Wage percentiles by major occupational group, May 2013
Percentile wages of occupations with similar median wages, May 2013

- Producers and Directors
- Social Sciences Teachers, Postsecondary, All Other
- Psychology Teachers, Postsecondary
- Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
Percentile wages of occupations with similar median wages, May 2013

- Producers and Directors
- Social Sciences Teachers, Postsecondary, All Other
- Psychology Teachers, Postsecondary
- Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
Percentile wages of occupations with similar mean wages, May 2013

- Chiropractors
- Sociologists
- Network and Computer Systems Administrators
- Occupational Therapists
- Nuclear Power Reactor Operators
Percentile wages of occupations with similar mean wages, May 2013

Chiropractors
Sociologists
Network and Computer Systems Administrators
Occupational Therapists
Nuclear Power Reactor Operators
Percentile wages of occupations with similar 10th percentile wages, May 2013

Broadcast News Analysts
Geological and Petroleum Technicians
Judicial Law Clerks
Occupational Health and Safety Technicians
Earth Drillers, Except Oil and Gas
Refractory Materials Repairers, Except Brickmasons

Writers and Authors
Percentile wages of occupations with similar 10th percentile wages, May 2013
CHANGE IN PERCENTILE WAGES, 2003-2013
Percentage change in real wages by percentile wage, 2003 to 2013

- 10th percentile: -2%
- 25th percentile: -4%
- 50th percentile: 0%
- 75th percentile: 1%
- 90th percentile: 4%
Real wages fell for low-wage occupational groups and rose for high-wage occupational groups.
Growth in employment was concentrated in high- and low-wage occupations, with a hollowing out of the middle
Percent of total 2010-2013 employment growth in each occupational group, ranked by initial mean wage

- Food preparation and serving related
- Farming, fishing, and forestry
- Personal care and service
- Building and grounds cleaning and maintenance
- Healthcare support
- Transportation and material moving
- Office and administrative support
- Production
- Agriculture, forestry, and fishing
- Protective service
- Installation, maintenance, and repair
- Community and social service
- Construction and extraction
- Education, training, and library
- Arts, design, entertainment, sports, and media
- Life, physical, and social science
- Business and financial operations
- Healthcare practitioners and technical
- Architecture and engineering
- Computer and mathematical
- Legal
- Management

Increasing 2010 mean wage
Change in metropolitan areas by size of area

- MSA sizes divided into 5 categories based on May 2013 employment
  - 1,000,000 or greater
  - 250,000 – 999,999
  - 125,000 – 249,999
  - 75,000 – 124,999
  - less than 75,000

- Wage ratios averaged across each MSA size category
2013 to 2003 MSA Comparison

- Chose MSAs with no geographical difference between 2013 and 2003 definitions
- 137 MSAs, May 2013 employment
  - 13 with 1,000,000+
  - 13 with 250,000–999,999
  - 32 with 125,000–249,999
  - 25 with 75,000–124,999
  - 54 with less than 75,000
- Same wage ratio/MSA size relationship when averaging 90/10 gap ratios across MSA size categories
- Largest numerical increase for largest MSAs
- U.S. all occupations data reflect largest MSAs
Substantial increase in 90/10 wage ratio in largest MSAs

All other MSA size categories show <5% increase

Increase for U.S. all occupations between largest MSAs and all other MSA sizes
Similar wage ratio/MSA size relationship when averaging 75/25 gap ratios across MSA size categories

Largest numerical increase for largest MSAs, but also fairly sizeable for other MSA size categories
- Increase in 75/25 wage ratio less than 90/10 for largest MSAs, higher for all other MSA size classes
- Increase for U.S. all occupations still between largest MSAs and all other MSA sizes but difference is less pronounced
Employment declined in 6 of these industries.
Employment change for industries with increasing wage disparity, 2005 to 2013

- Other Financial Investment Activities
- Oil and Gas Extraction
- Software Publishers
- Motion Picture and Video Industries
- Other Investment Pools and Funds
- Telecommunications Carriers (except Satellite)
- Monetary Authorities - Central Bank
- Securities and Commodity Exchanges
- Petroleum and Coal Products Manufacturing
- Intermediation and Brokerage
- Securities and Commodity Contracts
- Employment change for industries with increasing wage disparity, 2005 to 2013

Employment change

-150,000 -100,000 -50,000 0 50,000 100,000 150,000 200,000
Employment declined in 5 of the 10 industries
Employment change for industries with decreasing wage disparity, 2005 to 2013
Questions

- Are OES data useful for measuring inequality?
- How might we improve the OES wage data?
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